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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/004,170	10/30/2001	Louis B. Rosenberg	IMM1P027B	1999

22903 7590 01/22/2003

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EXAMINER
BRIER, JEFFERY A

ART UNIT	PAPER NUMBER
2672	

DATE MAILED: 01/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

10

Office Action Summary	Application No.	Applicant(s)	
	10/004,170	ROSENBERG ET AL.	
	Examiner	Art Unit	
	Jeffery A. Brier	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-57 and 59-68* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-52, 54, 56, 57, 59, 60, 62-68* is/are rejected.

7)☒ Claim(s) *53,55 and 61* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

1. The amendment filed on 12/09/02 has been entered and it amended claims 45-57 and 59-67 and it cancelled claim 58.

Response to Arguments

2. Applicant's arguments filed 12/09/02 have been fully considered but they are not persuasive.

The argument concerning the double patenting rejection "The double patenting rejection is rendered moot in light of the present amendment" is not persuasive because the present amendment broadened the claims, thus, they still cover the same invention patented in an obvious way.

The argument concerning Fung is disagreed with because the signals from the hand controller are indirectly filtered.

The argument concerning Radke is disagreed with because filter 14 does filter the signals output from the hand controller, figure 2, column 3 lines 52-59.

The argument presented for claim 45 is not persuasive because at least Radke directly filters the output of the hand controller, the claimed "filtering input data".

The argument presented for claim 57 is not persuasive because Radke directly filters the output of the hand controller while Fung indirectly filters the output of the hand controller and in Salcudean the system would inherently perform some filtering of the input signal due to system imperfections. Thus, it would have been obvious in view of

Radke to add to Salcudean a filter that filters disturbances from the input signal so more accurate cursor control will result.

The argument presented for claim 65 is not persuasive for the reason given above for claim 57.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9, 30, or 38 of U.S. Patent No. 5,999,168. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented claims are more detailed than the pending claims and because filter 120 of the patent would filter out some of the spurious signals generated by the force feedback movement of the user manipulatable device. of raw input signals. A comparison of claim 45 and claim 9/8/7/6/4/3/1 follows.

Pending claim 45	Patented claim 1 of U.S. Patent No. 5,999,168
45. (Once amended) A method, comprising: receiving a haptic-feedback signal at a haptic-feedback device, the haptic-feedback device being configured to provide input data to an associated graphical environment; and	1. A control system for a force feedback interface device used in providing force sensations to a user interfacing with an application program and with visual images displayed by a display device in accordance with said application program and in accordance with manipulations of said force feedback interface device by said user, the control system comprising: a force feedback processor for determining output force commands for commanding forces to be applied on a user manipulatable object grasped by a user, said forces being applied by at least one actuator coupled to said force feedback processor and to said user manipulatable object, wherein said force feedback processor determines time-based forces, said time-based forces being output to said actuator; and a haptic accelerator coupled to at least one sensor of said force feedback interface device and separate from said force feedback processor, said haptic accelerator receiving raw sensor data from said at least one sensor and providing processed data from said raw sensor data, said haptic accelerator performing fast processing of said raw sensor data into said processed data, said processed data including position data representing a current position of said user object in at least one degree of freedom and velocity data representing a current velocity of said user object in at least one degree of freedom, said processed data being sent to said force feedback processor to be used in said determination of output forces on said user manipulatable object, and

	Continuation of previous page wherein said haptic accelerator includes a haptic processing unit for determining motion-based forces, said motion-based forces being output from said haptic processing unit to said actuator. 3. A control system as recited in claim 1 wherein said sensor is a digital optical encoder providing two raw sensor signals, and wherein said haptic accelerator determines a position of said user object and a direction of said user manipulatable object in said degree of freedom using said two raw sensor signals. 4. A control system as recited in claim 3 wherein said haptic accelerator includes a quadrature module for determining said position data using said two raw sensor signals, said position data describing a position of said user manipulatable object. 6. A control system as recited in claim 4 wherein said haptic accelerator includes a motion processing module having a counter for counting a time interval between raw signals from said digital optical encoder such that said haptic accelerator may provide an acceleration of said user manipulatable object. 7. A control system as recited in claim 6 wherein said haptic accelerator includes a plurality of latches for storing said time interval and a previous time interval such that said haptic accelerator may provide said acceleration of said user manipulatable object.

filtering sensor data based on the haptic-feedback signal to produce the input data operative to reduce visual disturbance in the associated graphical environment.	8. A control system as recited in claim 7 wherein said haptic accelerator includes fault prevention logic for detecting errors and invalid signals from said sensor. 9. A control system as recited in claim 8 wherein said haptic accelerator includes a filter for rejecting spurious raw sensor signals.

5. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 23-35 of U.S. Patent No. 6,310,605. Although the conflicting claims are not identical, they are not patentably distinct from each other because pending method claims 45-64 are broader than patented method claims 23-34 and pending apparatus claims 65-67 are broader than patented apparatus claim 35. The major difference is the patented claims claimed *wherein said filtered input data is substantially free of a disturbance on said movement of said user* while the pending claims claim *operative to reduce visual disturbance in the associated graphical environment*. Therefore the difference is in the patented claims the disturbance is substantially removed and in the pending claims the disturbance is reduced. Reduced is broader than substantially removed.

6. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 21-28 or 32 of U.S. Patent No. 6,020,876. Although the conflicting claims are not identical, they are not patentably distinct from each other because pending method claims 45-64 are broader than

patented method claims 21-27 and pending apparatus claims 65-67 are broader than patented apparatus claims 28 or 32.

7. Claims 45-67 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 26 or 28 of U.S. Patent No. 6,067,077. Filtering for overshoot values and the use of a low pass filter would reduce the disturbances in the input signal caused by the force feedback on the user manipulatable object. Although the conflicting claims are not identical, they are not patentably distinct from each other because the pending claims are broader than the patented claims.

8. From the above comparisons it is clear that the pending claims are broader versions of the patented claims. Broader versions of patented claims are an obvious way for applicant to claim the same thing patented. *In re Vogel*, 422 F.2d 438, 164 USPQ 619, 623 (CCPA 1970). Vogel stated on page 623 "*The answer to the second analysis question, therefore, is yes, and the claim is not allowable in the absence of a terminal disclaimer. The correctness of this conclusion is demonstrated by observing that claim 10, by reciting "meat," includes pork. It is further noted that viewing the inventions in reverse order, i.e. as though the broader claims issued first, does not reveal that the narrower (pork) process is in any way unobvious over the broader (meat) invention disclosed and claimed in the instant application.*". Thus, this application's broader claims are not unobvious over the above identified patented claims.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 45-52, 54, 57, 59, 60, 62-65, 67 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Salcudean et al., U.S. Patent No. 5,790,108, Fung et al., U.S. Patent No. 5,116,180, and Radke et al., U.S. Patent No. 5,223,776.

Applicants claimed invention is a filter that reduces visual disturbances in a graphical environment when the visual disturbances occur in response to activation of the force feedback actuators.

Salcudean teaches a force feedback device that controls a graphical environment. Salcudean is silent about filtering the output of the force feedback sensors in order to reduce any disturbances caused by the movement of the mouse in response to the force feedback. However, applicant is only claiming reducing the visual disturbances and any type of filter would reduce the visual disturbances since they will reduce the movement signals generated by the mouse.

Fung teaches a force feedback device that controls a robotic manipulator. Fung teaches filtering the output of the force feedback sensors (131) by noise filter (121), H.C. gravity compensator algorithm (125) and position feedback compensator (126). The difference between Fung and applicant is Fung is indirectly filtering the feedback

device position sensor (131) signals applied to mapping software (135) and manipulator control algorithm (101).

Radke teaches a force feedback device that controls a system. Radke teaches in figure 2 a filter (14) for filtering the force feedback position signals (line 20) prior to applying the signals to a controlled system (18).

A detailed analysis of the claims and the prior art follows.

Claim 45:

In view of both Fung and Radke it would have been obvious to one of ordinary skill in the art at the time of applicants invention to filter the input data received from a haptic feedback device in order to reduce visual disturbances in a graphical environment caused by output of force sensation to the haptic feedback device because any type of filter would reduce the visual disturbance and because to solve the problem of visual disturbances in a graphical environment one of ordinary skill in the art would look to how the problem of visual disturbances in the real world were overcome.

Claim 46:

Salcudean teaches the input data is used with the associated graphical environment.

Claim 47:

Salcudean teaches determining a position of a graphical object in the associated graphical environment based on the input data.

Claim 48:

Salcudean teaches communicating the input data to a computer.

Claim 49:

Salcudean teaches performing haptic feedback calculation local to the haptic feedback device. Radke teaches performing the filtering near the haptic feedback device. It would have been obvious to one of ordinary skill in the art at the time of applicants invention to perform the filtering local to Salcudean's haptic feedback device since haptic feedback processing is performed local to the haptic feedback device, thus, enabling the movements caused by the haptic feedback from affecting the results of the cursor location determination, column 8 lines 58-65.

Claim 50:

Salcudean teaches performing haptic feedback calculation at the computer. Radke teaches performing the filtering near the haptic feedback device. It would have been obvious to one of ordinary skill in the art at the time of applicants invention to perform the filtering at the computer since haptic feedback processing is performed at the computer, thus, enabling the movements caused by the haptic feedback from affecting the results of the cursor location determination, column 8 lines 47-51.

Claim 51:

Fung teaches operating the force feedback device in four modes. See column 6 lines 5-9. Two modes have force feedback and two modes do not have force feedback. This teaching by Fung suggests enabling or disabling the filter in the above combination of Salcudean, Fung and Radke for the sole reason that the user may desire to see the visual disturbances. Additionally without the filter being enabled the filter will not filter, thus, the combination teach filtering when the filter is enabled to filter.

Claim 52:

Salcudean teaches outputting haptic feed back associated with an event in the graphical environment caused by the data values, column 9 lines 5-11.

Claim 54:

This is inherent in Salcudean since the because the mouse position sensing at column 8 line 59 is at least partly digital which requires sampling the sensor data over time according to a sampling rate.

Claim 57:

This claim is similar to claim 45 and is rejected for the same reasons.

Claim 59:

This claim is similar to claim 50 and is rejected for the same reasons.

Claim 60:

This claim is similar to claim 54 and is rejected for the same reasons.

Claim 62:

This claim is similar to claim 51 and is rejected for the same reasons.

Claim 63:

This claim is similar to claim 47 and is rejected for the same reasons.

Claim 64:

This claim is similar to claim 52 and is rejected for the same reasons.

Claim 65:

This claim is similar to claim 45 and is rejected for the same reasons.

Claim 67:

Salcudean teaches different haptic feedback at column 9 lines 9-11, 22-24, 27-30, 39-43, and 50-52.

Claim 68:

Salcudean teaches a memory at column 8 lines 62-65 and inherently to calculate the different haptic feedback described at column 9 lines 9-11, 22-24, 27-30, 39-43, and 50-52 some type of haptic feedback signals are required to be stored in a memory of some type. The term memory is a broad term and is being given its broadest reasonable meaning.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 54, 56, 60, and 66 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Amended claims 54, 56, and 60 are not supported by the specification because page 26 and figure 12 show sample points A, B, C, and D. It does not modify the sensor data. The sensor data is sampled at certain time intervals but it is not modified.

Amended claim 66 is not supported by the specification because sensor 28 does not receive a command from the computer to activate the filter.

Allowable Subject Matter

13. Claims 53, 55, and 61 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims

14. The prior art of record fails to teach or suggest filtering the sensor data only when the haptic-feedback signal causes the outputting of the haptic feedback of claim 53.

15. The prior art of record fails to teach or suggest modifying the sensor data by time-averaging the sensor data to create filtered input data of claims 55 and 61.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffery A. Brier whose telephone number is (703) 305-4723. The examiner can normally be reached on M-F from 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi, can be reached at (703) 305-4713).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jeffery A Brier
Primary Examiner
Art Unit 2672